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EXAMINER
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3692	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 February 2008*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16 and 18* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-16 and 18* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
        1.☐ Certified copies of the priority documents have been received.
        2.☐ Certified copies of the priority documents have been received in Application No. _____.
        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Continued Examination under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the **finality** of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on **2/11/2008** has been entered.

Acknowledgement

2.   The **amendments** with **claims 1** and **15** received on **2/11/08** have been entered. The **claim 17** (previously) **cancelled**. As such **claims 1-16** and **18** are pending.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4.   **Claims 1 and 15** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Particularly in **claims 1 and 15**, the recitations, "<u>into condensation and rarefaction structures</u>" is a new matter and not found in the original specification. Proper correction is required.

Claim Rejections - 35 USC § 101

5.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The claim 1 is directed to non-statutory subject matter. Patent statute does not allow patents to be issued on particular business systems and method that depend for their operation on human intelligence alone.

In case of **claim 1**, a method for determining purchasing amounts of respective financial products to optimize an objective function of earning rate involving risk and solving step of determining financial product to purchase for maximizing objective function is unpatentable as directed to nonstatutory subject matter under 35 U.S.C. §101, since mental processes standing alone are not patentable, even if they have practical applications.

The **claim 1**, at issue does not use of machine and does not describe process of manufacture or process for alteration of composition of matter, and since claim instead cover use of mental processes to solve the step of determining financial product to purchase and purchasing amount for maximizing objective function on the basis of input data, and thus seek to patent use of human intelligence in and of itself. Ref: In re Comiskey, 84 USPQ2d 1670(Fed. Cir.2007).

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by
> another filed in the United States before the invention by the applicant for patent or (2) a patent
> granted on an application for patent by another filed in the United States before the invention by the
> applicant for patent, except that an international application filed under the treaty defined in section
> 351(a) shall have the effects for purposes of this subsection of an application filed in the United States
> only if the international application designated the United States and was published under Article 21(2)
> of such treaty in the English language.

7.   **Claims 1, 2-14, 15, and 18** are rejected under 35 U.S.C. 102(e) as being

anticipated by *Horrigan* et al (6,493,682).

As per claim 1, *Horrigan* discloses an optimal portfolio determining method for

determining amounts of respective financial products among a plurality of financial

products so as to optimize an objective function (see **abstract**, via optimizes and

maximization of gains) consisted of earning rate of all of a plurality of financial products

and risk influencing for earning, comprising:

input step of inputting constraint parameters in a constraint expression forming

constraint condition for optimizing objective function consisted of an expected value of

the earning rate of each individual financial product, individual floating factor as unique

factor of each individual financial product influencing for earning, common floating factor

as factor of influencing for earning of overall financial products, and risk influencing for

earning rate and earning of overall financial product (**col.3**, lines 25-45; via optimizing

the objective function by limit order decision given by individual beliefs about expected

security returns and variance, risk aversion and portfolio investment goals and also

commonly used mean variance analysis taking overall risk into account).

solving step of determining financial product to purchase and purchasing amount

for maximizing said objective function on the basis of input data (**col.4**, lines 31-45; via

enabling the investor to quantify the adverse selection problem).

wherein a coefficient matrix of said objective function, which consists of

coefficients of said objective function, and coefficient matrix of said constraint

expression, which consists of coefficients of said constraint expression, have a portion

relating to individual floating factor and one portion relating to common floating factor,

and processing divided <u>into condensation and rarefaction structures </u>every characteristic

of said constraint expression (**col.11**, lines 21-53; via vector and matrices)

As per claims 2 - 4, *Horrigan* discloses preliminary process step of processing

of dividing a coefficient matrix appearing in said objective function into partial matrix

relating to individual floating factor of each individual financial product, and a partial

matrix relating to the common floating factor, upon determining the financial product to

purchase and purchasing amount with matrix elements and diagonal components, (see

Col. 5, line 1-45 and **col.11**, line 5-50; via placing limit order with discount from the

current offer price and having analytical solution of N securities with optimum discount

from N x N diagonal matrices with expected asset returns on various factors like each

securities filled or partially filled).

As per claims 5, 9, and 13, *Horrigan* discloses preliminary process step of

processing of dividing a matrix consisted of said constraint parameters into a partial

matrix relating to said financial products and said common floating factor, a partial

matrix relating to said common floating factor, a partial matrix relating to said financial product and purchasing amount thereof (**col.3**, line 45-60) and a partial matrix relating to purchasing amount of each group of each group in the case where said financial products are grouped into a plurality of groups (**col.13,** line 10-67; via another embodiment   to determine the optimum discount Γ from the principal price of N securities to maximize the expected utility for investors through plurality products of groups like IBM,GE, RHAT and matrix formalism as before).

As per claims 6 and 10, *Horrigan* discloses partial matrix relating to said financial product and said common floating factor is a matrix taking a product of said financial product and said common floating factor as dimension (**col.12,** lines 20-60; via N securities of the matrix NxN having with discount factors, N is called it dimension).

As per claims 7 and 11, *Horrigan* discloses partial matrix relating to said common floating factor is a diagonal matrix having element in a portion of diagonal component corresponding to number of said common floating factor (**col.11**, lines 20-35; via NxN diagonal matrix and diagonal elements for discounts and factors)

As per claims 8 and 12, *Horrigan* discloses partial matrix relating to constraint for purchasing amount of said financial product is a diagonal matrix having element in a portion of diagonal component corresponding to number of said common floating factors (**col.12**, lines 1-60; via risky assets associate with risky returns through matrix and other elements and discount factors).

As per claim 14, *Horrigan* discloses display step outputting the risk indicative of variation of earning and earning rate consisting said objective function, (**col 4,** line

35-45; via investor to quantify the adverse selection problem associated with uncertain order execution and a computer readable medium having stored thereon instructions for causing a central processing unit to execute with a data structures comprised of the data input and/ or outputs required for the invention).

As per claim 15, *Horrigan* discloses that an optimal portfolio determining system having a computer unit for determining purchasing amounts of respective financial products among a plurality of financial products so as to optimize an objective function consisted of earning rate of all of a plurality of financial products and risk influencing for earning (see **abstract**, via optimize and maximization of gains), said computer unit comprising:

storage device storing an expected value of the earning rate of each individual financial product; storage device storing individual floating factor as unique factor of each individual financial product influencing for earning, storage device storing common floating factor as factor influencing for earning of overall financial products, and storage device storing constraint parameters in a constraint expression forming constraint condition for optimizing objective function consisted of risk influencing for earning rate and earning of overall financial product; storage device storing a portion relating to individual floating factor, one portion relating to common floating factor, and a data divided <u>into condensation and rarefaction structures</u> every characteristic of said constraint expression, in coefficient matrix of said objective function, which consists of coefficients in said objective function, and coefficient matrix of said constraint expression, which consists of coefficients of said constraint expression, optimal portfolio

solving device determining financial product to purchase and purchasing amount for maximizing said objective function on the basis of data stored in said storage device; and display device outputting determined optimal portfolio (**col. 4,** lines 40-50; via a computer readable medium stored therein instructions for causing central processing unit to execute and a data structure comprised of input/outputs of all financial values , factors and related storing data and also in **claim 31**) .

Claim 17 (cancelled).

As per claim 18, *Horrigan* further discloses that an optimal portfolio determining method for determining purchasing amounts of respective financial products among a plurality of financial products so as to optimize an objective function (see **abstract**, via optimize and maximization of gains) consisted of earning rate of all of a plurality of financial products and risk influencing for earning, comprising:

input step of inputting constraint parameters in a constraint expression forming constraint condition for optimizing objective function consisted of an expected value of the earning rate of each individual financial product, individual floating factor as unique factor of each individual financial product influencing for earning, common floating factor as factor influencing for earning of overall financial products, and risk influencing for earning rate and earning of overall financial product; and solving step of determining financial product to purchase and purchasing amount for maximizing said objective function on the basis of input data (**col.3**, lines 25-45; via optimizing the objective function by limit order decision given by individual beliefs about expected security returns and variance, risk aversion and portfolio investment goals and also commonly

used   mean   variance   analysis   taking   overall   risk   into   account).

wherein coefficient matrix of said objective function, which consists of coefficients

of said objective function, and coefficient matrix of said constraint expression, which

consists of coefficients of said constraint expression, have a portion relating to individual

floating factor and a portion relating to common floating factor, and processing divided

every characteristic of said constraint expression (**col.11**, lines 21-53; via vector and

matrices).

further comprising a storage medium storing a program readable by a computer,

which stores a program executing, said input step and solving step on the computer

(**col.4**, lines 40-45).

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

9.   **Claim 16,** is rejected under 35 U.S.C. 103(a) as being unpatentable over

Horrigan in view of *Rhee* (2002/0138383).

As per claim 16, *Horrigan* discloses all the elements of the claimed invention, but fails to explicitly disclose a server computer including respective storage devices and a plurality of client computers receiving information by said server computer for displaying that are connected through a network.

Rhee being in the same field of financial planning and portfolio management discloses a server computer including respective storage devices and a plurality of client computers receiving information by said server computer for displaying that are connected through a network (para **0021-0024**; via Intra or Intra-net computer network system for computer server and client computers).

Therefore, from the teaching of *Rhee* it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the optimal order choice, evaluating uncertain discounted trading alternatives of *Horrigan* to include the computer network of two or more computers connecting together using a telecommunication system as taught by *Rhee* to facilitate communicating and sharing resources between server and client computers.

Response to Arguments

10.   **Applicant's** arguments filed on **02/11/2008** have been fully considered but they are not persuasive.

Applicant argues that among the limitations of the pending claims not present in *Horrigan* is a detailed model for optimizing the portfolio determination. Specifically, Horrigan's tool cannot deal with increased orders in real time. Horrigan discloses a

formulation   model   for   determining   the   optimal   portfolio. However, Horrigan fails to disclose or teach a concrete or detailed model for optimizing the portfolio determination. In Horrigan, a general purpose-optimizing tool may be used. Accordingly, Horrigan's tool cannot deal with increased orders in real time.

The Examiner respectfully disagrees.

Horrigan's method optimizes order decisions about expected security returns and variance, risk aversion and portfolio investment goals in real time to consider the maximization of gains in an order context as a function of both returns and the probability of the order being executed. It handles the case of multiple orders and enables an investor to consider an order strategy taking over all portfolio risk into account in practical world. It is unique as it simultaneously accounts for the opportunity costs and the adverse selection costs of uncertain orders such as equity limit orders; POSIT trades, equity principal order trading, etc. in real time.

Conclusion

1.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Peters et al (2003/0088489 A1) discloses about the earning optimization by advisory software.

Michaud et al (6,003,018) discloses about portfolio optimization through his resampled efficient frontiers.

2.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to MD HATEM H. ALI whose telephone number is (571)270-3021. The examiner can normally be reached on 8.00 to 6.00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kambiz Abdi can be reached on 571-272-6702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MA   Mohamed H Ali
                                                         Examiner
                                                         Art Unit 3692

/Harish T Dass/
Primary Examiner, Art Unit 3692